

UTILITY IDENTIFICATION AND PERMIT PROGRAM

PURPOSE

To establish a standardized process to be followed by all divisions and sections when confronted with an excavation or concrete cutting and coring as a phase of work. It is the intent of this chapter to provide guidance regarding actions needed to obtain an excavation permit prior to any activity that penetrates the soil and as complementary procedures when operating under FESHM 7010 (Subcontractor Construction Safety Program) or FESHM 7020 (Subcontractor Safety- Other than Construction). This chapter is not a primer on how to do a safe excavation. Standards to follow when opening an excavation can be found in the Code of Federal Regulations 29CFR1926 subpart P.

POLICY

A FERMI-JULIE contact has been established within the FES Section to be the sole coordinator for all excavation and concrete cutting and coring permits requested under this chapter. The individual so named or his designee is the only person authorized to contact locators and coordinate locates.

A completed permit is required before the activity starts.

CAUTION

For excavations in close proximity of beamline enclosures please refer to the section titled "EXCAVATIONS ON OR IN THE VICINITY OF ACCELERATOR ENCLOSURES" in this chapter. The Task Manager/Construction Coordinator is responsible for the verification of excavation boundaries against the boundaries of beam enclosures to avoid possible encroachment during excavation activities. Read the Beams Division ES&H Procedure BDSP-10-0003 and/or consult with the Beams Division RSO.

DEFINITIONS

Excavation- Any man-made cut, cavity, trench, or depression in an earth surface, formed by earth removal.

Competent Person- One who is capable of identifying existing and predictable hazards in the surroundings, or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.

Construction Coordinator- A person specifically assigned to oversee the work of a fixed-price construction subcontract for conformance to the subcontract documents. Construction Coordinators are primarily furnished by the FESS Engineering Group, which is at times supported by outside A/E personnel under FESS direction.

Fermi-Julie - The one-call system established in Fermilab to act on requests for locating buried utilities.

Fermi-Julie Coordinator- The Fermi employee assigned duties under this chapter to coordinate locates of buried utilities and process excavation permits.

Task Manager - A division/section designated individual specifically assigned to oversee and direct a work activity. Usually this term is applied to individuals directing the work of the blanket order Time and Material Subcontractors for specific trades, general construction or service work. An approved Task Manager/Construction Coordinator list indicating an individual's experience and competency to direct specific work activities is updated and distributed regularly by the Directorate. Each division or section has the responsibility of providing the necessary training for personnel to become qualified Task Managers. See training requirements in FESHM 7010 under the "Training of Task Managers/Construction Coordinators" heading.

FERMI-JULIE CONTACT INFORMATION

The FERMI-JULIE office can be reached by phone at extension 5000.

DUTIES AND RESPONSIBILITIES

- a. Task Managers/Construction Coordinators or other Division/Section employee
 - 1. Prepare and submit the excavation permit to the FERMI-JULIE coordinator.
 - 2. Provide oversight of excavation and concrete cutting/coring activities in division/section areas.

3. Coordinate the activities.
4. Ensure that the subcontractor or the Division/Section competent person for the excavation is at the excavation site anytime excavation activities are in progress.

Note: The task manager/construction coordinator shall verify the location of the excavation as compared to the beam enclosure boundaries.

b. ES&H Section

Provide oversight of excavation activities when requested by the division/section.

c. Utility Locators

Review drawings and visit the proposed excavation site to identify and mark underground utilities, if necessary.

d. FERMI-JULIE Coordinator

1. Receive site-wide utility location requests.
2. Review and retrieve existing drawings related to utility locations, as required.
3. Coordinate with utility locators and JULIE Inc. of Illinois, as necessary.
4. Meet with locators for field utility identification purposes.
5. Process excavation permits and related field "as-built" data.
6. Maintain records for updating of site-wide utility "as-built" drawings.

STANDARDIZED COLORS FOR UTILITY LOCATORS

Paint, flags or other marking schemes will use color as specified on the permit form.

PROCEDURES

EXCAVATION- OUTDOORS

1. The task manager/construction coordinator will prepare an excavation permit using the form at the end of this chapter. He/She will attach a sketch or drawing that adequately identifies the area where the excavation will take

place. This sketch will show the approximate location of the excavation and information such as approximate width and length.

Note: Ensure the information on the permit is printed legibly and the sketch is also readable.

2. The task manager or subcontractor must then mark the perimeter of the proposed excavation in the field using stakes and tape or, if on paved areas, using paint.
3. The task manager/construction coordinator will submit the permit no later than close of business on Monday to guarantee a permit by close of business on Friday. The permit request package can be hand delivered to the Julie coordinator, faxed, or mailed. If mailed, the requestor must allow additional time for delivery. The FERMI-JULIE coordinator will in turn contact the individuals listed as contacts for each utility and set up times for the locating and marking process. As each utility locate is completed, the person doing the locate is to sign and date the permit. It is understood that, in many instances, the utility contact may not have any utilities buried in the excavation area. In those instances, the locator may sign the permit without having to physically visit the site of the excavation. Locators must scan the entire area for "high priority" utilities. If the locator sees no need to visit the proposed excavation site, he/she will sign the permit and write N/R in column (5) and sign in the appropriate place. If, on the other hand, the locator locates and marks the utility, he/she will place an **X** in the fifth column to show that markings are present. This can be done verbally and so indicated in the form by the JULIE coordinator in lieu of the locator actually signing the form. The FERMI-JULIE coordinator will indicate on the sketch the locations of all the utilities found.
4. When all locates and marks are completed, the FERMI-JULIE Coordinator will enter the expiration date, sign and issue the permit. The expiration date on the permit should be no more than seven (7) calendar days after completion of the last utility locate. The expiration date means that the excavation must start no later than the expiration date on the permit. If the excavator fails to start within the timeframe, the task manager/construction coordinator, at his discretion, may extend the permit expiration date for additional seven-day increments once the integrity of the ground marks is verified. In these instances, a copy of the permit showing the new expiration date must be sent to the JULIE coordinator. If the permit lapses at any point then the permit is void and a new permit must be requested.
5. The Task Manager/Construction Coordinator shall have the subcontractor competent person sign the permit acknowledging receipt and then provide a

copy to the subcontractor. A copy of the permit and sketch must then be attached to the hazard analysis. Subcontractor employees involved in the excavation must re-sign the hazard analysis (additional sign-off sheets may be added). The excavation permit must be posted at the excavation anytime that there are excavation activities in progress. The copy can be kept with the excavator and shall be available for inspection by safety personnel or others involved with the project.

6. At the completion of the excavation, the TM/CC will annotate in the sketch any conditions different than expected regarding the utilities; for example, if they were found in a place not as marked or the utility was found at a depth not expected. If possible, also make a notation regarding the routing that was observed while the excavation was opened. If new utilities were installed, the information on routing and depth or any other pertinent characteristics must also be annotated in the permit packet. The TM/CC shall contact FERMI-JULIE to assist with the localization of new or exposed unknown utilities using the GPS system of and is also strongly encouraged to use color photography or color digital photography, as available, to document actual conditions.
7. Copies of the entire package are to be sent to FERMI-JULIE for creating or updating as-built documentation.
8. There may be times when it is known with certainty that an area where an excavation is being considered is free of buried utilities. This certainty may have been reached by various means including corporate memory of construction of the facility, review of as built drawings or other means. In these special cases, FERMI-JULIE does not have to be contacted to perform a locate of utilities. It is sufficient for the task manager or construction coordinator to certify in writing that such area is devoid of buried utilities. This certification shall be attached to the hazard analysis and in effect will become a permit.

EXCAVATIONS ON OR IN THE VICINITY OF ACCELERATOR ENCLOSURES

The purpose of these administrative controls, are to assure that shielding and groundwater protections are not compromised when working on or near accelerator enclosures. Refer to Beams Division ES&H Procedure BDSP-10-003, "Measures To Assure Shielding and Groundwater Protection During Civil Construction In The Vicinity Of Accelerator Enclosures".

For any excavation activity with the potential of encroaching an accelerator enclosure the following step shall be employed:

1. Compare the location of your excavation to the boundaries of accelerator enclosures, beam absorbers, and muon plumes as indicated on the Beams Division RSO Map. If the excavation work activity is planned near these boundaries, an annotated Beams Division RSO map shall be processed with the permit.
2. If required, mark the limits of the excavation on the map. Attach map with marks to the Work Permit and Notification Form and to the excavation permit request to demonstrate that the excavation activities are near the boundaries identified on the BD RSO Map.
3. If the limits of the excavation are within 50 feet of an accelerator enclosure the following controls shall apply:
 - a. Beams Division ES&H Procedure BDSP-10-0003 shall apply.
 - b. The Work Permit and Notification Form shall indicate that an excavation is within the 50 foot boundary as specified in the BD ES&H procedure. (A box to insert a check mark is provided on the WPNF.)
 - c. Initiate a request for an excavation permit following the procedure outlined in this chapter.
 - d. The Beams Division RSO may require a cross-section drawing showing the proposed excavation and its relationship to the accelerator enclosure. It is the responsibility of the Task Manager/Construction Coordinator to secure and submit this drawing

EXCAVATIONS - EMERGENCY SITUATIONS

There may be instances where a system, utility or facility failure requires an immediate excavation to make repairs and where timeliness is of the utmost importance to preserve life or property. Applying the requirements of this chapter when an after hours emergency arises may prove to be unfeasible when speed of repairs is essential. In these instances, the landlord division/section head can waive the requirements of this chapter and authorize the excavation to expedite repairs. The task manager or construction coordinator shall take special care, given the circumstances, to identify high-risk utilities before proceeding.

During normal working hours FERMI-JULIE shall be contacted as part of the emergency response activities.

CONCRETE CUTTING AND CORING ACTIVITIES

The hazards associated with concrete cutting and coring activities will be dealt with as a distinct phase of work in the hazard analysis form written for the job. The hazards of this type of activity are electrocution, arc flash burns and electrical explosion in the case of electrical utilities and injuries due to pressure release or water damage to equipment in the case of pressurized piping or water pipes. Follow the procedures listed below:

1. FERMI-JULIE will be contacted to secure the services of a commercial locating service who will locate all embedded utilities in the area. At the discretion of the division/section, trained Fermi employees may do locates if proficient in the use of the equipment and the interpretation of the data.
2. Before the cutting or coring starts, assume that an energized circuit will be cut or an active utility damaged and follow the safe work precautions as specified in the hazard analysis for the cutting/coring concrete activity. For locations where an energized circuit may be cut, the cutting/coring machine or apparatus must be grounded.
3. **All electrical circuits running near the coring/cutting area will be de-energized** and other utilities running through the area turned off unless there is a compelling reason to leave them ON in an energized or active state. The compelling reasons must be stated in the hazard analysis form and includes the signature of the person requiring the power to stay ON.

Every effort will be made to plan the work during times when de-energizing circuits or turning off utilities will cause the least disruption to operations.

4. There may be times when it is known with certainty that an area where concrete cutting or coring is being considered is free of embedded utilities. This certainty may have been reached by various means including corporate memory of construction of the facility, review of as built drawings or other means. In these special cases, FERMI-JULIE does not have to be contacted to perform a locate. It is sufficient for the task manager or construction coordinator to certify in writing that such area is devoid of embedded utilities. This certification shall be attached to the hazard analysis and in effect will become a permit.
5. The certification may take the form of a memo to the record or some other manner suitable to the division/section. This certification must be signed by the building manager or area manager and the task manager as a minimum. Other signatures may be added at division/section management's discretion.

EXCAVATIONS- ON OR NEAR SOLID WASTE MANAGEMENT UNITS (SWMU'S)

There are five solid waste management units that introduce additional hazards to subcontractors and Fermilab employees when excavating near them. These areas are the Village Machine Shop, Meson Hill, the CUB Tile Field, the Railhead Storage area and the Meson & Neutrino Activation Areas. Exposure hazards are listed in Table-1 below for each unit. The location of the SWMU's can be gleaned from the site chart at the end of this chapter.

Table 1- Fermilab Solid Waste Management Units

SWMU No.	SWMU Name	Type of Contamination or Concern
5	Village Machine Shop	Trichloroethene, cis-1,2-Dichloroethene, 1,1-Dichloroethene
12	Central Utilities Building- Pipe and Clay Field	Tritium, Gross Alpha, Gross Beta, Chromium, Barium, Cadmium, Lead
13	Meson Hill Landfill	Demolition Waste, Soil, Clean Fill, Other Debris
14	Railhead Storage Area	Lead
15	Mesons & Neutrino Activation Areas	Accelerator produced radionuclides

CAUTION: Excavation in these areas require prior coordination with the ES&H Section and specific hazards associated with these units included in the Hazard Analysis.

The FERMI-JULIE coordinator will contact ES&H-EP Group only in those instances when a permit is processed that may impact the SWMU's; otherwise, if there is no impact, the coordinator will enter **N/R** in column 5 and initial.

Locations

Map showing the locations of various sites in the Meson Hill area, marked with red circles and numbers:

- 14: Railhead
- 13: Meson Hill Landfill
- 15: Meson/Neutrino Activation Areas
- 5: Village Machine Shop
- 12: CUB Tile Field

The map also shows several roads, including Wilson St, Meson Hill Road, CUB Road, and others. A scale bar indicates distances in feet (ft.).



Excavation Permit

Complete the following:

Date of Request

Est. Starting Date

Est. Completion Date

Project Title

Project Number

Building Name or Site Location

Requesting Employee Name

Phone # Cellular or Pager #

Div/Sec or Subcontractor

Phone # Cellular or Pager #

Requestor is to attach site drawing(s) of the area to be excavated. Outline the excavation and provide approximate dimensions (width and length).

Issued

FERMI-JULIE Coordinator

Print
Sign

Acknowledgement

Subcontractor (Competent Person)

Print
Sign

Employee/Task Mgr/Const. Coord.

Sign

☐ A checkmark in this box indicates excavation is in the vicinity of an accelerator enclosure.

☐ A checkmark in this box indicates that there are restrictions associated with this permit.

BOLD items indicate required information before the permit can be processed.

EXTENDED TO
Date
Signature

EXTENDED TO
Date
Signature

EXTENDED TO
Date
Signature

not more than 7 calendar days
after last utility locate is
completed

EXPIRES

UNDERGROUND UTILITIES LOCATION (S) CONTACT (S)

Project Name _____

Project # _____

Need date: _____

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
UTILITY	Utility Locator Or Contact.	EXT.	DATE/TIME Contacted	Utility Marked (X or NR)	Color Used	SIGNATURE Verbal-V/Written-W Approval	Restriction	DATE
Telecomm	Nanette Larson Anita Menz-Cwiklik (Alt)	4550 6409			Orange			
CATV	Larry Jackson Tim Cunneen (Alt)	4073 4070			Orange			
CD Datacomm cabling	CD/DCD/DCI Service Call	4373			Orange			
FIRUS	Al Legan Joe Flores (Alt)	4113 2894			N/A			
High Voltage	Joseph Pathiyil Miguel Nuñez (Alt)	3004 4656			Red			
Up to 480V	Cliff Worby Richard Bergquist (Alt) Andrew Auersch (Alt)	3364 3364 3364			Red			
Gas, Sewer & Water Lines	Steve Shirley Doug Boyd Paul Ronning- (Alt)	3363 3363 3363			Gas-Yellow			
					Sewer- Green			
					Water- Blue			
BD/CAMAC & Timing Links	Terry Hendricks Rupert Crouch (Alt)	8181 8181			N/A			
BD- Radiation Safety	Mike Gerardi John Anderson (Alt)	4570 4973			N/A			
LCW (Underground Fixed Target	Ross Doyle John Buckley (Alt)	3677 4731						
ES&H-EP SWMU's Only	Paul Kesich Geoff Eargle (Alt)	4495 4847			N/A			

Additional Remarks: _____
